EL DORADO CHEMICAL COMPANY

MATERIAL SAFETY DATA SHEET
AMMONIUM NITRATE PRILL

SECTION 1: PRODUCT AND COMPANY INFORMATION.

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SECTION 2: COMPOSITION AND INFORMATION ON INGREDIENTS.

COMPOSITION:

Ammonium Nitrate	98-100% by weight
Water	0.05-0.5% by weight
Conditioning Agent(s)	0.05-0.7% by weight

Ammonium Nitrate (AN) CAS# 6484-52-2 Formula: NH_4NO_3

SECTION 3: HAZARDS IDENTIFICATION.

EMERGENCY OVERVIEW:

DANGER: Strong Oxidizer

Contact with combustible materials may cause fire. As an oxidizer, AN may increase the flammability and/or explosiveness of other substances.
Potentially explosive if contaminated with organic matter or finely divided metals; if heated under confinement; or if subjected to severe shocks.
Unstable at high temperature and may decompose producing toxic vapors (NOx).
WARNING: Overexposure can cause skin rash, irritation to eyes or inhalation discomfort.

POTENTIAL HEALTH HAZARDS:

GENERAL ACUTE EXPOSURE:

AN is a mild skin, eye, and respiratory irritant, possible allergen, and methemoglobin inducer. Because it can form methemoglobin, it may have irreversible effects which can be life threatening.

GENERAL CHRONIC EXPOSURE:

By analogy with nitrobenzene, AN is in Class A+ as a reproductive hazard. It is important to remember that this hazard is due to its association and there is no direct evidence for adverse reproductive effects. Nevertheless, it would be prudent for pregnant women not to be exposed to AN.

EYE:

May cause irritation with discomfort or blurred vision.

SKIN:
May cause irritation with discomfort or rash.

INGESTION:
May cause abdominal spasms, nausea, and pain.

INHALATION:
Irritating to mucous membranes. May cause lung congestion. May cause inhalation discomfort.

SECTION 4: FIRST AID MEASURES.

EYE: Immediately flush with large amounts of tepid water for at least 15 minutes. Contact a physician immediately.

SKIN: Flush skin with large amounts of tepid water for at least 15 minutes followed by washing area with soap and water. Remove contaminated clothing. Contact a physician if irritation or pain persists.

INGESTION: Give large amount of water. Induce vomiting with caution. Never give anything by mouth to an unconscious or convulsing person. Contact a physician immediately.

INHALATION: Remove to fresh air. Contact a physician. Observe for delayed effects.

SYMPTOMS OF OVEREXPOSURE:

Acute:
Cyanosis, nausea, vertigo, collapse, vomiting/abdominal pain, and tachycardia (rapid heartbeat), tachypnea (rapid breathing), coma, convulsions, and death can occur.

Chronic:
Small repeated doses may lead to weakness, general depression, headache and mental impairment.

SECTION 5: FIRE FIGHTING MEASURES.

FLAMMABLE PROPERTIES:
Ammonium nitrate is a strong oxidizing agent and will support combustion in the absence of oxygen. Ammonium nitrate will not spontaneously combust. However, spontaneous ignition at moderately elevated temperatures may occur when ammonium nitrate is contaminated with oxidizable materials such as oil, diesel fuel, wood, seed, charcoal, sulfur, finely divided metals or other combustible substances. If confined and ignition occurs, an explosion may occur.

EXTINGUISHING MEDIA:
Flood with large volumes of low pressure water from a distance if water is compatible with the burning material. Do not use $C0_2$, dry chemicals, or foam extinguishers. Ammonium nitrate releases nitrogen oxides when heated and smothering will not extinguish ammonium nitrate fires. Never seal off or close building doors or compartments when fire occurs.

FIRE AND EXPLOSION HAZARDS:

Nitrogen oxides emitted during fire and resulting decomposition are extremely toxic. Contamination of ammonium nitrate with oil, diesel fuel, wood, seed, charcoal, sulfur, finely divided metals or other combustible substances may result in an explosion during a fire. If structure containing ammonium nitrate is fully engulfed in flames, **DO NOT** fight fire. Evacuate surrounding area for at least ½ mile radius.

HAZARDOUS DECOMPOSITION PRODUCTS:

Decomposition may release toxic oxides of nitrogen, ammonia and nitric acid.

FIRE FIGHTING EQUIPMENT:

Fire fighters should wear approved self-contained breathing apparatus to protect themselves from the toxic fumes of decomposing ammonium nitrate and protective clothing should be worn to guard against molten nitrate splashes.

SECTION 6: ACCIDENTAL RELEASE MEASURES.

Keep combustibles (wood, paper, oil, etc.) away from spilled material. Contain spill. With clean shovel, carefully place material into clean, dry container and cover loosely; remove from area. Spilled ammonium nitrate fertilizer can be reused if kept dry and uncontaminated.
Spills that have become contaminated with organic matter or other combustible material may present a fire and explosion hazard. Such material should be shoveled into drums and dissolved in water to obtain at least 50 percent water solution. Depending upon the amount of toxicity of the contaminated material, the solution can be reused as a fertilizer or disposed of. Use appropriate personal protection. Flush spill area with water. Do not allow wash water to enter sewers, waterways or drinking water supplies. Should this occur, notify appropriate regulatory agency.

SECTION 7: HANDLING AND STORAGE.

HANDLING:

-Do not mix with any combustible material.
-Keep away from heat, sparks, flame, hot surfaces or any other sources of ignition.
-No smoking near this material.
-Do not get in eyes, on skin or clothing.
-Do not ingest.
-Do not inhale dust.
-Handle only in areas with sufficient ventilation to avoid inhalation of dust or wear an approved respirator.
-Sweep up and dispose of all spilled material promptly.
-Wash hands thoroughly after handling.
-Remove and wash contaminated clothing promptly.

STORAGE:

-Avoid contamination with oil, diesel fuel, wood, seed, charcoal, sulfur, finely divided metals or other combustible substances.
-Floor drains and recesses should be plugged to prevent collection of molten ammonium nitrate in the event of a fire.
-Store in cool well-ventilated area away from fire hazards and easily oxidizable materials.
-Keep separate from other chemicals and combustible materials.
-Refer to National Fire Protection Association (NFPA) Code 400, Chapter 11 for recommended best practices.

-Stored ammonium nitrate is subject to local regulations. Refer to applicable fire and building codes.
-Do not store near dynamite, blasting caps, or any other explosives.
-Storage should be designed for safe release of pressure in emergency.
-Bagged ammonium nitrate fertilizer is subject to storage stocking and quantity regulation.
-Follow all federal, state and local regulations.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION.

RESPIRATORY PROTECTION:

a. None required where adequate ventilation conditions exist.
b. Decomposition of AN may produce nitrogen oxides (NO_x vapors) and ammonia. Use fresh air supply systems to protect against NO_x vapors.
c. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.
d. For conditions of use where exposure to dust or mist is apparent and engineering controls are not feasible, a particulate respirator (NIOSH type N95 or equivalent) may be worn.

If necessary to enter a confined area which contains AN, monitor for ammonia vapors. If ammonia vapors are present protect as follows:

<25 ppm:	No protection required.
25 to 35 ppm:	Protection required if the daily Time Weighted Average (TWA) is exceeded.
35 to 50 ppm:	Protection required if exposed for more than 15 minutes.
50 to 250 ppm:	Minimum of an air-purifying respirator equipped with ammonia canister(s) or cartridge(s).
250 to 300 ppm:	Minimum of a full-face air-purifying respirator equipped with ammonia canister(s) or cartridge(s).
>300 ppm:	A fresh air supply system must be used (i.e. positive pressure self-contained breathing apparatus).

SKIN PROTECTION:

Skin contact should be avoided. Wear long sleeved clothing and protective gloves to prevent prolonged or repeated skin contact. Refer to OSHA General Requirements for Personal Protective Equipment 29 CFR 1910.132.

EYE PROTECTION:

Wear chemical safety goggles and provide eye wash stations when direct eye contact is possible. Refer to OSHA Requirements for Eye and Face Protection 29 CFR 1910.133.

EXPOSURE GUIDELINES:

OSHA and ACGIH have not established exposure limits for ammonium nitrate. However, OSHA and ACGIH have established limits for nuisance dusts (particulates not otherwise specified - PNOC).

	OSHA-PEL 8 hr TWA		ACGIH-TLV 8 hr TWA
Total Dust:	15mg/m^3	Inhalable Dust:	10mg/m^3
Respirable Dust:	5mg/m^3	Respirable Dust:	3mg/m^3

Exposures to ammonium nitrate dust should be kept below these limits.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES.

Appearance:	Colorless to off-white prills
Odor:	Trace of ammonia odor
pH:	Not Applicable
Flashpoint:	Not Applicable
% Solids:	100%
% Volatiles:	0%
Solubility:	Very soluble in water;By WT. 66.4% @ 70˚F
Vapor Density:	Not applicable
Vapor Pressure:	Not applicable
Specific Gravity:	1.72 @ 70˚F
Boiling Point:	.Decomposition temperature 410˚F
Melting Point:	311˚F - 337˚F
Molecular Weight:	80.05

SECTION 10: STABILITY AND REACTIVITY.

STABILITY:

Ammonium nitrate is unstable under high temperature and near open flames, organic materials, combustible materials or explosives. AN starts to dissociate and decompose at temperatures above 410˚F. Upon decomposition it emits nitrogen oxide (NO_x) and water vapors and may explode if confined. If the product has been contaminated with another substance the decomposition temperature and effects of the decomposition may be varied. See incompatibilities below.

INCOMPATIBILITY:

Combustible materials, metal powders, flammable liquids, explosives and any ignition source. AN is incompatible with the following substances: Acetic Acid, Acetic Anhydride, Alkali Metals, Aluminum + Calcium Nitrate, Aluminum, Ammonium Chloride, Ammonium Dichromate, Ammonium Phosphate + Potassium, Antimony, Barium Chloride, Bismuth, Brass, Cadmium, Charcoal + Metal Oxides, Chloride Salts, Chromium, Cobalt, Copper Iron II Sulfide, Copper, Cyanoguanidine, Hydrocarbon Oils, Iron, Lead, Magnesium, Manganese, Nickel, Organic Fuels, Potassium Chromate, Potassium Dichromate, Potassium Nitrate, Potassium Nitrite, Potassium Permanganate, Sawdust, Sodium Chloride, Sodium Perchlorate, Sugar, Sulfide Ores, Sulfur, Tin, Titanium, Trinitroanisole, and Zinc.

NOTE: The incompatibilities above are a partial list taken from books by SAX & Lewis: "Dangerous Properties of Industrial Materials", 7th ed., 1989 and "Hawley's Condensed Chemical Dictionary", 11th ed. 1987, both published by Van Nostrant Reinhold Company, New York and other sources. It is recommended that if additional information is needed, refer to these and other published information. Incompatibility varies with AN concentration and not all forms of the above listed substances are incompatible.

HAZARDOUS DECOMPOSITION PRODUCTS:

Ammonia, oxides of nitrogen, nitric acid.

HAZARDOUS POLYMERIZATION:

Does not occur.

SECTION 11: TOXICOLOGICAL INFORMATION.

ACUTE:

Can cause eye and skin irritation and possible chemical burns. Inhalation of dust may cause severe lung congestion and delayed reactions resulting in pulmonary edema and chemical pneumonitis. Ingestion of large doses may cause systemic acidosis and methemoglobinemia.

CHRONIC:

Prolonged and repeated exposure may cause skin dermatitis, kidney damage and conjunctivitis. Exposure may aggravate pre-existing dermatitis and kidney and lung conditions. Ammonium nitrate is not classified as a carcinogen by IARC, NTP or OSHA.

TARGET ORGANS:

Eyes, skin, mucous membranes.

Toxicity

Acute Oral Toxicity
LD_{50} Rat ..... 2,800 mg/kg bw (OECD 401)
Acute Inhalation Toxicity
LC_{50} Rat ..... > 88.8 mg.L (4 hrs)
Acute Dermal Toxicity
LD_{50} Rat ..... > 5,000 mg/kg (OECD 402)
Acute Toxicity, Other Routes
Minimum lethal dose Rat ..... 0.065 mg NH_4NO_3-N
Corrosiveness / Irritation
Skin Irritation Rabbit ..... Moderately irritating
Eye Irritation Rabbit ..... No data available
Repeated Dose
NOAEL Inhalation Rat ..... 185 mg/m^3 (2 weeks)
NOAEL Inhalation Rat ..... 1 mg/m^3 (4 weeks)
Genetic Toxicity *in vitro*
Salmonella typhimurium Negative (Bacterial reverse mutation assay)
Development Toxicity / Teratogenicity
NOEL Rat ..... > 57 mg/kg/day

Ecotoxicity

Acute Toxicity to Fish
LC_{50} *Cyprinus carpio L* ..... 1.15 – 1.72 mg unionized NH_3/L (48 hrs)
LC_{50} Many species ..... 420 – 1,360 mg NO_3/L (96 hrs)
Acute Toxicity to Aquatic Invertebrates
EC_{50} *Daphnia magna* ..... 555 mg/L
Acute Toxicity to Aquatic Plant (Algae)
EC_{50} *Scenedesmus quadricauda* ..... 83 mg/L
Chronic Toxicity to Aquatic Invertebrates
NOEC *Bullia digitalis* ..... 300 mg/L (Up to 7 days)

Source: TFI Product Testing Program April 2003.

SECTION 12: ECOLOGICAL INFORMATION.

Notify local health and wildlife officials and operators of nearby water intakes of contamination or discharge into or leading to waterways. Ammonium nitrate is a plant nutrient; however, large spills may kill vegetation and fish and cause algae blooms if waterways are contaminated. Fertilizers containing ammonium nitrate can cause poisoning in livestock and poultry.

NOTE: See Ecotoxicity Information in Section 11.

SECTION 13: DISPOSAL CONSIDERATIONS.

Sweep or scoop up spilled material. Flush area with copious quantities of water. Dilute spill to at least 50%. Do not allow contact with combustible materials. Spilled dry material or water solutions of ammonium nitrate can be distributed on land as fertilizer. Consult with federal, state or local authorities for additional or alternative requirements.

SECTION 14: TRANSPORTATION INFORMATION.

Shipping Name:..... Ammonium Nitrate (with not more than 0.2% of
..... combustible substances including any organic
..... substances calculated as carbon to the
..... exclusion of any added substance)
UN/DOT ID #:..... UN 1942
DOT/IMO Hazard Class:..... 5.1
Packaging Group: III
DOT Label/Placard:..... Oxidizer 5.1, Color: Yellow
STCC Number:..... 4918311

Quantity Limits:
Passenger Aircraft or Railcar:..... 25kg
Cargo Aircraft Only:..... 100kg
Vessel Stowage:..... A
..... Packaging Authorizations:
Exceptions:..... 49 CFR 173.152
Non-bulk Packaging: ..... 49 CFR 173.213
Bulk Packaging: ..... 49 CFR 173.240
DOT Emergency Response Guide Number:..... 140

SECTION 15: REGULATORY INFORMATION.

OSHA:

This product is covered under the OSHA Hazard Communication Standard 29 CFR 1910.1200 (Employee Right to Know).

CERCLA SUPERFUND, 40 CFR 117,302:

There are no reportable quantities for accidental releases of this product under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA).

SARA TITLE III:

a. EHS (Extremely Hazardous Substances) List: Not Listed (EPA, 1992a)
b. EHS RQ (Reportable Quantity): No RQ established.

c. TPQ (Threshold Planning Quantity): None
d. As distributed by El Dorado Chemical Company, this product contains no compounds subject to reporting under Section 313 of SARA Title III and 40 CFR 372; however, these federal regulations do contain reporting requirements regarding water solutions of ammonia and nitrates. Additionally, the following federal environmental statutes apply to this product: SARA Title III, Sections 311 & 312 (40 CFR 370).

TSCA INVENTORY:

a. Listed (RTECS, 1993)

SECURITY:

This product is listed as a Chemical of Interest (COI) by the Department of Homeland Security (DHS) for theft. DHS 6 CFR part 27 Appendix A, Chemical Facility Anti-Terrorism Standards (CFATS).

CANADIAN HAZARDOUS PRODUCT ACT:

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

SECTION 16: OTHER INFORMATION.

HAZARD RATINGS:

	HMIS	NFPA	
			0: minimal
Health Hazard (Blue)	1	1	1: slight
Flammability (Red)	0	0	2: moderate
Reactivity (Yellow)	3	3	3: serious
			4: severe
Special Hazard:	Oxidizer	Oxidizer	

Although the information and recommendations set forth herein (hereinafter "information") are presented in good faith and believed to be correct as of the date hereof, El Dorado Chemical Company makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determinations as to its suitability for their purposes prior to use. In no event will El Dorado Chemical Company be responsible for damages of any nature whatsoever resulting from the use or reliance upon information. No representations or warranties, either express or implied, or merchantability, fitness for a particular purpose or any other nature are made hereunder with respect to information or the product to which information refers.

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